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On the Cutting Complement

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A case of Extroversion of the Bladder. By William Anderson, F.R.C.S. *Read November* 27, 1891.

THE patient, W. T., a boy, aged 10, was admitted into St. Thomas's Hospital with congenital extroversion of bladder in June, 1890.

The appearances were of the ordinary type. The bladder showed itself as a hemispherical tumour, about the size of a large orange, filling the space between the imperfectly developed penis and the point normally occupied by the umbilicus: the mucous membrane of the upper third of the protrusion had for the most part assumed the aspect of a thin cicatricial tissue, owing to a modification in the character of its epithelium, but below this it was red like a granulating sore, and presented several patches of excoriation and two small hernial protrusions. The ureters opened about three fourths of an inch above the rudimentary penis, and with the aid of a probe the canals could be traced, running first backwards, then upwards by the side of the rectum. The pubic bones, terminating anteriorly in pointed extremities, were separated by a distance of about three inches; while the width between the anterior superior spines reached ten inches. The scrotum was empty and the testicles could be felt in the groins, the left somewhat larger than the right. There was no hernia, and the abdominal walls were not defective, except at the seat of the extroversion.

The patient was a good-looking lad but small for his age, slightly pigeon-breasted, and of somewhat retarded intellectual development. His gait had the usual waddling character dependent upon the wide unfolding of the ossa innominata, and he suffered much from the irritable condition of the protrusion and from the constant leakage of urine, which no receptacle could be devised to collect. The details of his family history were difficult to ascertain, but it is stated that his father and mother both died of phthisis, and that his only brother was lame, apparently from some joint disease.

The case having been placed in my hands through the kindness of my colleague Sir William MacCormac, I determined to carry out a plan of operation suggested by my

friend Mr. H. Milton, of Cairo; and although the result was ultimately disappointing, I propose to describe the procedure in detail in order that the causes of failure may be understood.

Chloroform having been administered, it was found that with the onset of complete muscular relaxation the extroversion sank back into the pelvic cavity, until the viscus was represented by a cup-like hollow between the two recti (Pl. I, fig. 1). The finger of an assistant was then passed into the bowel and pressed forward in such a way that it could be felt from without, and so formed a guide of some value in the course of the operation. This done, a curved incision was made all around, immediately within the margin of the open bladder and urethra, extending through the mucous membrane and as far into the muscularis as appeared safe. Flaps of these tissues were dissected up for about half an inch from without inwards, one on each side, until it was found that their free margins could be made to meet without tension. After the introduction of an elastic catheter (No. 10) the flaps were joined by a double row of stitches, an inner set of fine catgut, uniting the edges of the mucous membrane, an outer of silk, applied after the manner of Lembert, to the adjacent muscularis. The union when complete resulted in the formation of a pyriform vesico-urethral cavity, which was proved by experiment to be capable of holding an ounce and a half of milk without leakage (Pl. I, figs. 2 and 3).

The next step was the dissection from within outwards of two marginal skin-flaps; and after relieving tension by two lateral incisions, carried down to the deep fascia opposite the outer borders of the recti, the edges were brought together over the closed bladder by means of wire sutures and two hare-lip pins. The catheter was tied in and the surface was dressed with iodoform gauze and salicylic wool. The patient, who had borne the prolonged operation exceedingly well, was put to bed in a semi-recumbent posture.

All went on favourably during the two following days; the temperature remained normal, the urine escaped freely by the catheter, and the dressings kept dry. On the afternoon of the third day, however, he was seized by an attack of diarrhœa, an epidemic of which had just appeared in the large ward adjacent to his room, and the temperature rose to 100°. No local disturbance was observed, except a diminished drain from the catheter; but the following morning, the fourth, the dressings were found saturated

with urine, and on removing them it was seen that a leakage had occurred. The skin-flaps were laid open, revealing the subjacent space filled with urine and muco-pus, and two of the vesical sutures had yielded. The catheter had become completely inefficient, and when withdrawn was found blocked with mucus and phosphatic deposits. A new instrument was introduced in the hope that the bladder-rent might remain limited; but the mucus persistently intercepted the urethral drain, and during the next two days we had the chagrin of watching stitch after stitch give way till the whole of the line of union had broken down, and the prolapse had become restored.

The effort appeared to have so nearly attained success that it was repeated in a modified form eight weeks later. On this occasion the operation was confined to the vesico-urethral wall, leaving the integumentary flaps for a subsequent stage, and a preliminary urethral drain was established by a perineal aperture, through which the catheter was passed. Again all went on well for a time, but on the third day the escape of urine ceased, and the flow through the catheter was intercepted by the dense vesical mucus, which defied all attempts to expel it by injection. The same inexorable breaking down of the surgical line of union followed, and the prolapse once more presented itself, leaving a condition not materially better or worse than before the treatment was commenced.

On looking back at this disappointing termination it is evident that the success of the operation was opposed by two circumstances: firstly, by the impracticability of maintaining free and continued drainage of urine, owing to the viscidity of the mucus secreted by the newly formed bladder; and secondly, by an insufficient vitality of the thin muco-muscular flaps. There is little doubt, however, that it was the former rather than the latter factor that determined the misfortune, and as it is possible that in other cases this evil might be less insurmountable, there may still be a future for the measure, especially as the sequel to this case proves that the endeavour does not impair the prospects of a subsequent plastic operation.

On November the 7th a different plan of treatment was adopted. The mucous membrane was dissected from the upper half of the bladder, a somewhat tedious process; two flaps were then detached from the abdominal integument (down to the fascia), one on each side as in the accompanying diagram (fig. 11), and brought together in the middle

line by sutures over the raw submucous tissue just prepared for their reception; their upper and lower edges were

Fig. 1.

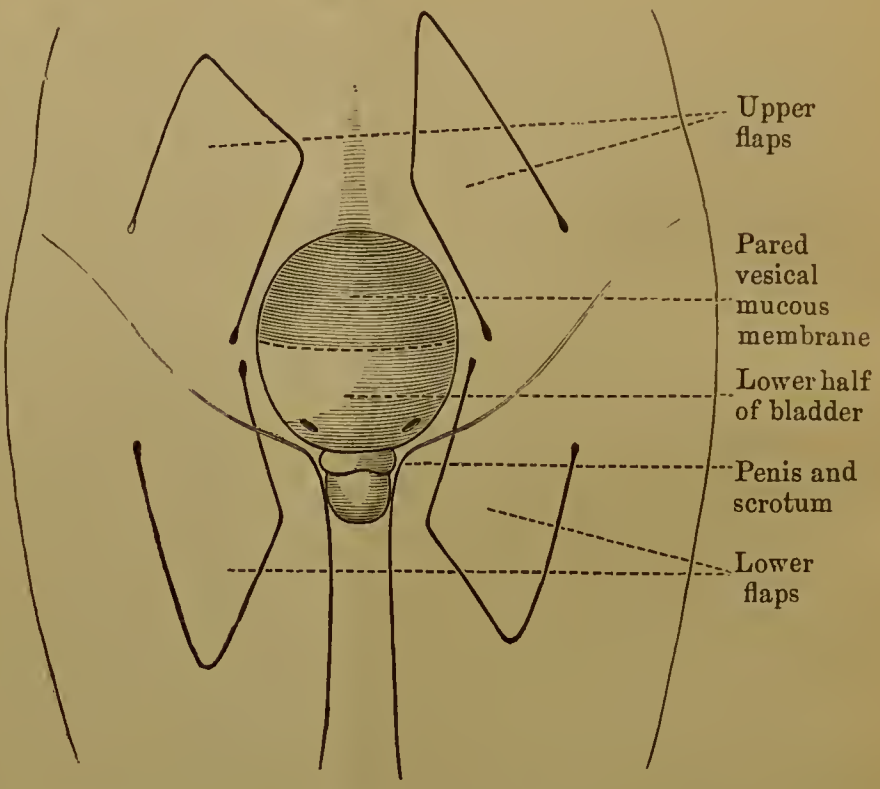


Diagram showing extent and position of flaps in cutaneo-plastic operation.

finally united by thin catgut to the cut edge of the vesical mucous membrane below, and to the freshened cutaneous margin of the prolapse above. In this way the upper half of the bladder was permanently obliterated, the flaps uniting in their whole extent by first intention to the surfaces presented to them. A month later (December 5th) the preparation of flaps for the lower part of the bladder was commenced. Two strips of integument, extending from the level of the middle of the bladder on each side downwards across Poupart's ligament for a short distance on to the thigh, were raised from the fascia, except at their extremities, where they were left attached. A piece of oiled silk was passed beneath each, and the wound was thickly smeared with a protective layer of iodoform and vaseline. At the same time the left testicle was removed, the right being spared on account of the uncertainty as to the relation of its tunica vaginalis with the peritoneum. Six days afterwards

Fig 1

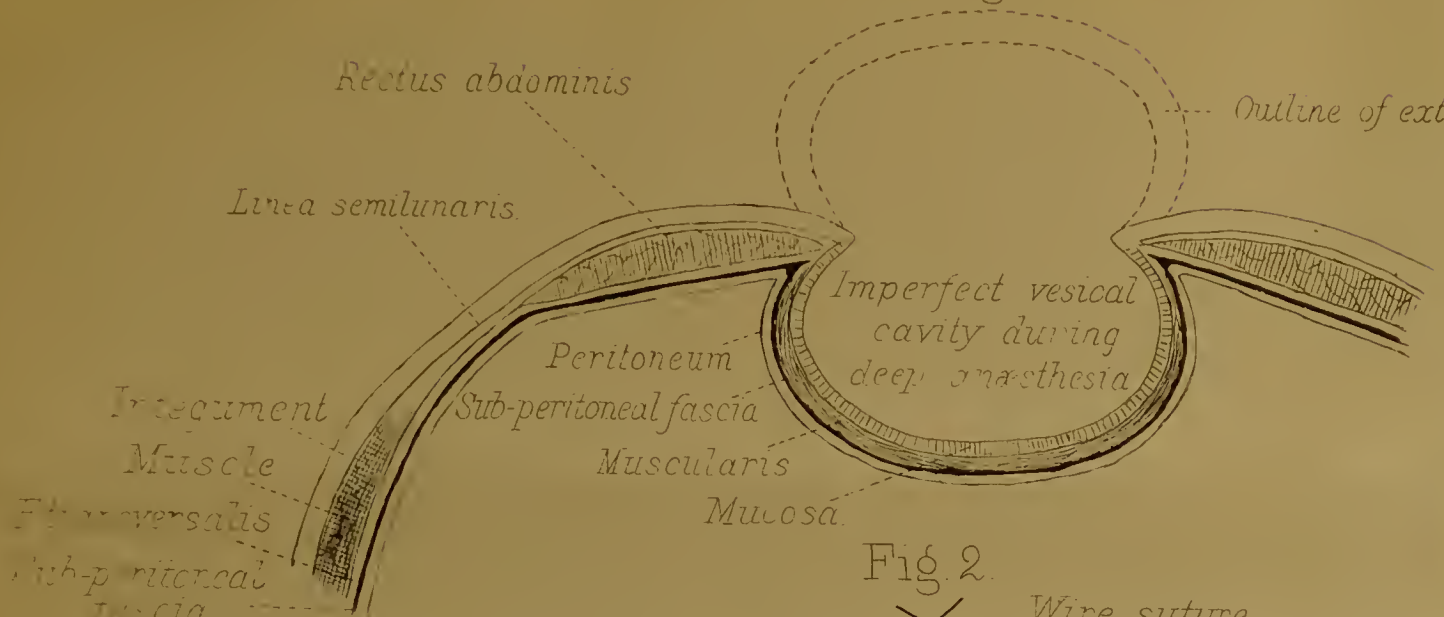


Fig 2

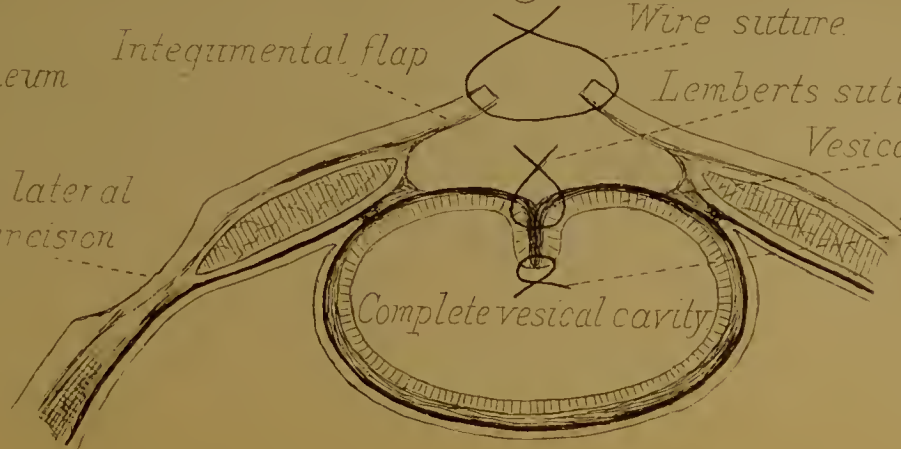
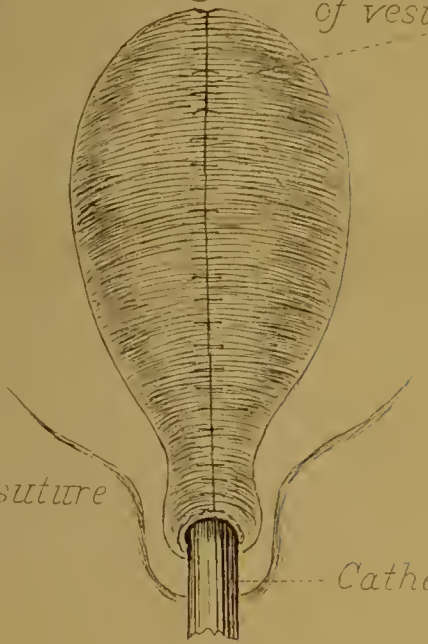


Fig 3



The new bladder seen from the front

the wound was attacked by erysipelas, and for five weeks the boy remained very ill. Fortunately, however, the flaps retained their vitality, and on February the 19th it was judged safe to detach their distal ends. Two weeks more were allowed for the cicatrisation, already well advanced, to extend over the greater portion of the deep aspect of the band, and then the lower half of the bladder was covered in by the union of the two flaps in the middle line, and the junction of their pared upper margin to the freshened lower margin of the first pair of flaps. This was successful, and a final operation was undertaken on May the 25th to bring the lower edge of the inferior flaps into union with the integument over the sides of the cleft corpora cavernosa in such a way as to leave a short urethra. This

Fig. 2.

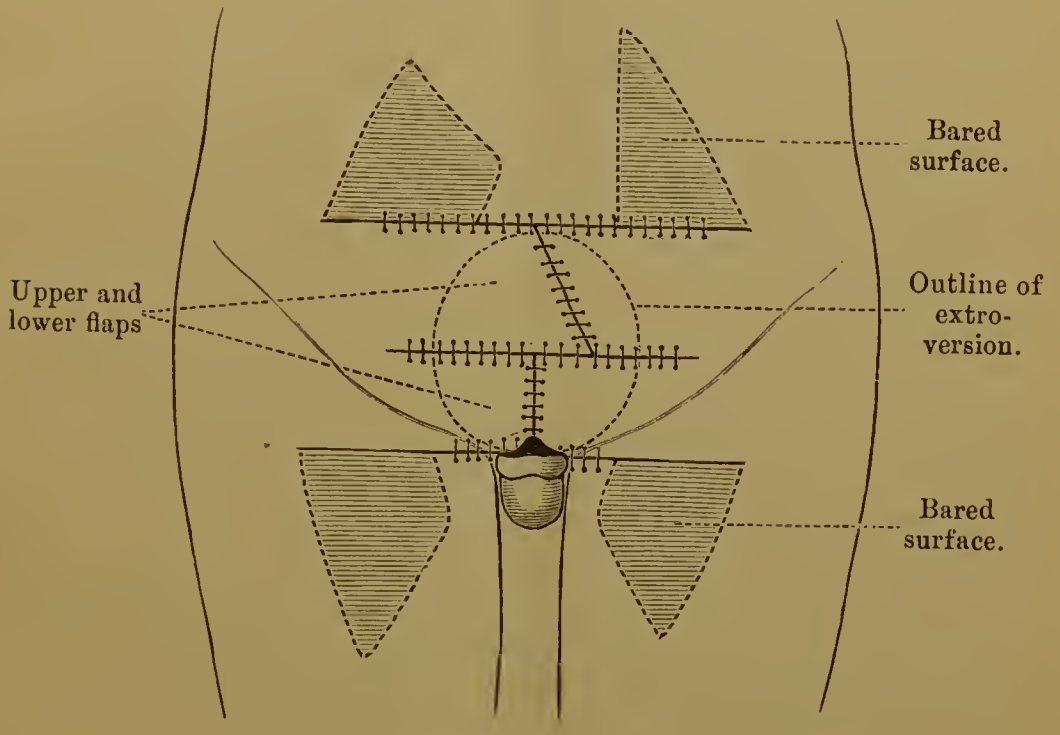


Diagram showing flaps *in situ*.

measure also succeeded, and at the close of a fortnight the result was complete (Pl. II). The bladder was well covered in, and the urine escaping from the end of the penis could be collected by an ordinary apparatus; locomotion was greatly improved, although the swaying dependent upon the peculiar conformation of the pelvis necessarily persisted; and the general health

had become better than at any previous time. A strong elastic bandage is now worn around the hips in the hope that it may prevent increase in the interpubic cleft, and already the distance between the iliac spines is reduced by half an inch, although the boy has grown in height since the operation. He says he is able to walk for at least an hour without fatigue.

This method differs from that of Professor Thiersch in two respects: firstly, in the immediate transplantation of the flaps over the prepared upper half of the extroversion, a step which helped to shorten the period of treatment; secondly, in the use of four short flaps instead of two long ones, by which the risk of gangrene was diminished. The preliminary cicatrisation of the deep surface of the lower flaps was a further gain, but a little time was required to secure it. The total duration of treatment under the cutaneo-plastic method was somewhat less than seven months, and it might have been reduced considerably, probably to three months, had it not been for the severe intercurrent attack of erysipelas and the long-standing enfeeblement to which this illness gave rise. It may be noted that the operations themselves induced very little constitutional disturbance.

Both Thiersch's plan and this appear to have two distinct advantages over the duplicated flap operation of Wood: firstly, that there is a much smaller demand upon the integument, and consequently less immediate risk from shock and exhaustion, and less prejudice to subsequent measures in the event of failure; and secondly, that the patient is freed from the danger of vesical irritation which the growth of hair from an inverted cutaneous surface would be likely to induce at a later period.

The patient was, of course, too old for Trendelenberg's operation upon the sacro-iliac synchondrosis, but even had it been feasible it does not appear certain that the interference with the pelvic girdle would have offered any advantage proportionate to the risk incurred.

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DESCRIPTION OF PLATE II.

To illustrate Mr. Anderson's Case of Extroversion of the Bladder.

From a photograph taken shortly after the completion of the final operation. The protrusion and overhanging aspect of the new vesical wall have since almost entirely disappeared.

The widening of the pelvis and the forward displacement of the shoulders are well brought out in the picture. The latter is apparently due to the patient's constant efforts before the operation to carry the clothing away from the sensitive prolapse, and is now (February, 1892) scarcely perceptible. It has been noticed in other cases.

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